COMP227 Requirements, Analysis and System Design

STUDY GUIDE: First half-year 2002

COURSE OUTLINE
COMP227 provides an understanding of the system design process which links requirements to the computer based system. This unit emphasises problem formulation and problem solving. Students will learn how to analyse a problem domain and develop appropriate models to formalise the requirements using object oriented methods and appropriate theory.

COURSE OBJECTIVES
Students will gain an introduction to and competency in problem domain analysis and computer-based system design methods - their principles, application and practice.

A student successfully completing the unit will:
1. have an understanding of the life cycle of system development
2. have knowledge of requirements elicitation techniques and understanding of particular problem domains
3. be able to analyse the system requirements and build a logical model of the system
4. be able to turn the logical model from the analysis phase into a design model from which a system can be built
5. be able to use CASE tools to support the requirements, analysis and design phases
6. be able to develop a computer interface and have knowledge of good features in human-computer interaction design
7. be aware of the impact of implementation issues on various phases of the development life cycle

LECTURING STAFF

<table>
<thead>
<tr>
<th>Name</th>
<th>Room</th>
<th>Phone #</th>
<th>Email address</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

COURSE MATERIAL
Material relating to the unit will be posted on the COMP227 World Wide Web page:

http://www.comp.mq.edu.au/courses/comp227

The Web material will include lecture notes, tutorial questions, practical materials and assignment handouts. If you have a question relating to COMP227, check the Web page first, as this may save you having to track down a staff member.

TEXTBOOKS
These textbooks are available from the University Co-op Bookshop.

Text
Optional Reference Books


TIMETABLE
Each week you should attend three hours of lectures, a one hour tutorial, and a one hour practical session.

Lectures
Day Stream: Monday 10am, Tuesday 10am and Thursday 2pm in Macquarie Theatre
Night Stream: Tuesday 6:00-9:00 pm (E7B T2)

Tutorials*
Time selected at enrolment – tutorials commence in Week 2

Practicals*
Time selected at enrolment – practicals commence in Week 2

* To change or select a practical and/or tutorial
You need to attend the "Change of Program" sessions organised by the Undergraduate Studies Section. Once Change of Program sessions are over, you will need to see the course coordinator to apply to change practical/tutorial classes. Note: many practical classes will be full, so you might not be able to change.

WORKLOAD
COMP227 is a three credit point unit. It is, therefore, expected that a student will spend approximately twelve hours per week on this unit throughout the semester. Since there are five hours of timetabled classes, this means that each student can expect to spend around seven hours working on COMP227 outside of class. You should note that it is extremely unlikely that the required practical and assignment work can be completed solely within your scheduled practical class time – you are expected to complete this work at other times.

ASSESSMENT
There are two components:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>25% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final examination</td>
<td>75% of total</td>
</tr>
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</table>

In order to pass the unit (ie. obtain a CQ or better) you are required to perform satisfactorily in each of the assignments, the practical examination and the final examination components of the unit. Students who have not completed at least 3 of the 4 assignments will not eligible to sit for the exam.
Assignments

There will be four practical assignments in COMP227. **Students who fail to complete the assignments satisfactorily will receive no special consideration for illness or misadventure at the final examination.**

The assignment schedule is as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Topic</th>
<th>Available</th>
<th>Due</th>
<th>Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Requirements</td>
<td>Week 2</td>
<td>Week 4</td>
<td>4.5%</td>
</tr>
<tr>
<td>Two</td>
<td>Analysis</td>
<td>Week 5</td>
<td>Week 7</td>
<td>8%</td>
</tr>
<tr>
<td>Three</td>
<td>Design</td>
<td>Week 7</td>
<td>Week 10</td>
<td>8%</td>
</tr>
<tr>
<td>Four</td>
<td>Implementation</td>
<td>Week 10</td>
<td>Week 12</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

The assignments are a significant amount of work. You are unlikely to be able to do them in the week just before they are due. The assignments will be structured in parts to enable you to plan a suitable work schedule and to commence work on them well in advance of the due date.

**Submission of assignments**

Assignments handed in late will NOT be marked, except in the case of illness or misadventure. If you are ill, or some disaster befalls you, you must submit a written application to the course coordinator, **within one week of the due date**, explaining the reasons you failed to have your assignment ready on time. To be considered, you must provide appropriate documentation (such as a medical certificate). Note that crowded laboratories, equipment failure or loss of your files are no excuse for late submission of an assignment.

You are encouraged to:
1) set your personal deadline earlier than the actual one
2) keep backups of all your important files
3) ensure someone else does not pick up your printouts.

**Final Examination**

A three hour final examination will be held at the end of the semester. All material covered in the text, lectures, tutorials and practicals will be examinable.

**TUTORIALS**

Each week (except for Week 1) there will be a tutorial to enable you to ask and answer questions on the material from the previous week of lectures. Questions will be made available on the COMP227 Web page in the week prior to the tutorial. You should attempt to answer the questions before you get to the tutorial and bring along any questions you want to ask. Attendance at tutorials will be recorded. **Students who fail to attend 80% of tutorials will receive no special consideration for illness or misadventure at the final examination.**

**PRACTICALS**

Each week (except for Week 1) there will be a session designed to give you practical experience with the concepts and techniques discussed in lectures and tutorials. Practical demonstrators will be available to answer questions and help you use the computers and software.
The tasks to be performed in a practical session will be made available on the COMP227 Web page before the practical. You should read and think about the problems before you come to the practical.

**LECTURE TOPICS**
The planned schedule of topics to be covered in lectures is as follows. This schedule may be changed at any time and you should listen to announcements in lectures or watch for updates on the web page. The Reading column indicates the relevant sections of the textbooks. You should read these before attending the relevant class – by doing so you will significantly enhance your understanding of the subject matter.

<table>
<thead>
<tr>
<th>Week</th>
<th>Beginning</th>
<th>Topics</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>4 March</td>
<td>Intro, Life Cycles, Requirements elicitation</td>
<td>Chapters 1</td>
</tr>
<tr>
<td>Week 2</td>
<td>11 March</td>
<td>Requirements Specification and Use Cases</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>Week 3</td>
<td>18 March</td>
<td>Analysis - OO concepts</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>Week 4</td>
<td>25 March</td>
<td>Analysis – State Modelling</td>
<td>Chapters 2, 4</td>
</tr>
<tr>
<td>Recess</td>
<td>30 March – 14 April</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 5</td>
<td>15 April</td>
<td>Analysis - Behaviour Modelling</td>
<td>Chapters 2,4</td>
</tr>
<tr>
<td>Week 6</td>
<td>22 April</td>
<td>Analysis – Further topics</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>Week 7</td>
<td>29 April</td>
<td>Design – Intro, System Design</td>
<td>Chptr 5.2, 6.1</td>
</tr>
<tr>
<td>Week 8</td>
<td>6 May</td>
<td>Design – Object Design</td>
<td>Chptr 6.2, 6.3</td>
</tr>
<tr>
<td>Week 9</td>
<td>13 May</td>
<td>Design - Databases</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>Week 10</td>
<td>20 May</td>
<td>Design – Human Computer Interaction</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>Week 11</td>
<td>27 May</td>
<td>Program Design</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>Week 12</td>
<td>3 June</td>
<td>Testing and Change Management</td>
<td>Chapters 10</td>
</tr>
<tr>
<td>Week 13</td>
<td>10 June</td>
<td>Revision</td>
<td></td>
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<tr>
<td>Exams</td>
<td>17 June - 3 July</td>
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**SECOND-YEAR LABORATORIES**
All practical sessions will be held in the Second Year Computing Labs E6A123 or E6A121.

The University Council has approved a set of rules governing access to and the use of the University's computing facilities (you are directed to page 16 of the 2002 Macquarie University Calendar, or to [http://www.ois.mq.edu.au/policy/mqrules.html](http://www.ois.mq.edu.au/policy/mqrules.html)). These rules are also published in a document, *Rules Governing the Use of Computing Facilities and Computer Security Policy at Macquarie University* produced by the Office of Information Services. All users are bound by these rules. Students who break them will be suspended from using the systems and, in serious cases, may be referred to the Discipline Committee of the University.

The rules set out the rights and, conversely, the responsibilities of all users of the facilities. For example, abuse of the email system by sending unwanted or abusive email to others is a serious offence. The rules also include the principle that the files in an account are the owner's personal property and should be treated as such. For example, unauthorised use of someone else's account is a serious offence, whether it be copying their files (stealing), or changing them (damage), or merely gaining access to them (trespass).

You will be expected to observe these rules and also any other regulations posted in the Department's laboratories.
Computer Lab Usage

Lab Usage Rules

To ensure all students have full and proper access to clean and workable equipment, it is important for you to respect the following:

Mobile phones must be switched off before you enter the lab – you may not use them within rooms E6A 123 or E6A 121.

When you finish at a computer, you should log off and leave the computer ready for use by the next student. Do not turn the computer off.

Remember that pressing the "reset" button should be tried only when everything else fails. If you are not sure what to do, ask the Practical Supervisor on duty.

If you have trouble with any of the equipment you should inform a supervisor if possible. If no supervisor is available, you should make sure that an electronic mail message is sent to the account help@ics.mq.edu.au giving details of the room, the computer number and the problem.

SPECIAL CONSIDERATION

If you have experienced circumstances that you believe have adversely effected your performance, then you may apply for Special Consideration.

To be eligible for Special Consideration, however, you must have:

- submitted at least three out of four assignments and achieved at least a 50% result in the total of all submitted assignments AND
- attended 80% of all tutorials AND
- attached a completed Professional Authority Form to your request, AND
- provided valid documentary evidence to substantiate your circumstances, AND
- submitted your request in accordance with the University’s regulations (ref: http://www.registrar.mq.edu.au/indexf.html)

If you do not satisfy ALL of these criteria, your request will NOT be considered.

Where, in the view of the Division, you are to be granted Special Consideration, you should note the following:

Your performance in the final examination will not be considered. Your final grade will be based on your assignment marks, and the Special Examination.

Failure to sit for the Special Examination will result in a grade of FA being recorded.

There is no exception to this rule.

It is not Division policy to award extra marks on the basis of Special Consideration.

Process

When you request Special Consideration, you are telling us that your performance has not reflected your true ability. In advising us of these circumstances, you must ensure that you are readily available to be contacted AND you must hold yourself available to sit for the special examination at short notice on the date and time we set.
If you elect to be away during the week of the special examination, and so cannot be contacted or are unable to sit for the examination, your grade for the unit will be reported as FA.

Purpose of the Special Consideration Process
The purpose of any special examination is to resolve the temporary difficulty caused by your illness or misadventure, and is not to give you an advantage over other students by allowing you extra time to study. We will, therefore, hold the special examination as soon as possible, and in determining your grade, we will take into account the possibility of extra study time available to you.

Further information
The University Regulations pertaining to Assessment are detailed on pages 162 – 164 of the 2000 Macquarie University Calendar, with more specific information and the required forms available at:


You are expected to read, understand and comply with these Regulations.

PLAGIARISM
Plagiarism is where you use the work of another person and present it as your own. This is categorically NOT PERMITTED.

If you are caught encouraging, assisting or committing plagiarism, you (and all involved in the episode) will have minus the total marks for that assignment deducted and may be suspended from the unit.

The University's plagiarism rules are at:


It is in your interests to familiarise yourself with these rules.

To help clarify what does, and what does not, constitute plagiarism, the Department has written some guidelines. You are strongly encouraged to read these guidelines at:

http://www.comp.mq.edu.au/~jan/tlc.html#Plagiarism
HELP!!
If you have a problem relating to COMP227 that cannot be solved by consulting the Web page, you should contact the most appropriate staff member, as follows:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>A change to your tutorial/practical group</td>
<td>Undergraduate Studies Section</td>
</tr>
<tr>
<td>Questions about marks</td>
<td>)</td>
</tr>
<tr>
<td>Late submission of assignments</td>
<td>) <strong>Debbie Richards</strong> in her consultation hours</td>
</tr>
<tr>
<td>Illness/Misadventure evidence</td>
<td>)</td>
</tr>
<tr>
<td>All other administrative problems</td>
<td>)</td>
</tr>
<tr>
<td>Questions about <strong>tutorial</strong> material</td>
<td><strong>Tutor</strong> in your scheduled class</td>
</tr>
<tr>
<td>Questions about <strong>practical</strong> material</td>
<td><strong>Practical Supervisor</strong> in your scheduled class</td>
</tr>
<tr>
<td>Questions about <strong>lecture</strong> material</td>
<td><strong>Lecturer</strong> in their consultation hours</td>
</tr>
</tbody>
</table>

Consultation hours for lecturers will be on their office door and on the COMP227 homepage.

In general, the best way to contact a member of staff is to check their office door, or the COMP227 homepage, for details of their advertised Office Hours. During these hours, the member of staff will be available in their office to discuss COMP227-related matters. You may also contact a staff member via email.

Your first practical session will show you how to use email in the laboratories.

Debbie Richards
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